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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,318	12/26/2006	Junichi Nakamura	294695US0PCT	5709

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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MEKHLIN, ELI S

ART UNIT	PAPER NUMBER
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1793

NOTIFICATION DATE	DELIVERY MODE
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08/26/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/588,318	<b>Applicant(s)</b> NAKAMURA ET AL.	
	<b>Examiner</b> ELI MEKHLIN	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/2/2007</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

(1)

This is the first office action on the merits. Claims 1-6 are pending before the Office for review.

(2)

### ***Claim Objections***

Claim 2 objected to because of the following informalities: “followoing” should be “following”. Additionally, Claim 2 also contains two separate sentences. This is improper and Applicant should rephrase the claim so that Claim 2 only contains one sentence.

Appropriate correction is required.

(3)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

Art Unit: 1793

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over YANAGASE et al. (JP 09165554 A).

With respect to **claim 1**, YANAGASE teaches a coating composition that comprises an emulsion of a graft block copolymer and colloidal silica. Paragraphs 10 and 11. The colloidal silica is added to the emulsion of a graft block copolymer at a ratio of 1 to 300 weight parts of silica per 100 weight parts of polymer, which covers the claimed range. Paragraph 11. Specifically, as per MPEP 2144.05, when claimed ranges lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists.

Additionally, in a working example, YANAGASE teaches that the colloidal silica has a particle size of 10 to 20 nanometers, which is less than 60 nanometers. Paragraph 70.

Art Unit: 1793

Finally, although YANAGASE is silent as to how much area the colloidal silica occupies on the surface coating, a person having ordinary skill in the art at the time of invention would have appreciated that the properties of a coating are dependent on the coating's composition and that identical coating compositions have identical coating properties. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the coating composition taught by YANAGASE meets the colloidal silica coating requirements of the instantly claimed invention because the coatings have the same coating composition.

With respect to **claim 2**, YANAGASE teaches an aqueous coating material comprising a polymer and colloidal silica. Paragraphs 10 and 11. Specifically, YANAGASE teaches that the colloidal silica is added to the emulsion of a graft block copolymer at a ratio of 1 to 300 weight parts of silica per 100 weight parts of polymer, which covers the claimed range. Paragraph 11. Specifically, as per MPEP 2144.05, when claimed ranges lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. In a working example, YANAGASE teaches that the colloidal silica has a particle size of 10 to 20 nanometers. Paragraph 70.

Additionally, YANAGASE teaches that the aqueous coating composition further comprises a surfactant. Paragraph 46. Specifically, YANAGASE teaches that the surfactant can be sodium polyoxyethylene alkylphenyl ether sulfate, a sulfate salt of polyoxyalkylene alkylaryl ether. Paragraph 53.

Finally, with respect to the polymer composition, YANAGASE teaches that the polymer can comprise a monomer, which is can be polymerized via radical

Art Unit: 1793

polymerization, having dimethylsiloxane, a hydrolysable silyl group, and a vinyl monomer unit. Paragraph 11. Specifically, YANAGASE teaches that the content of the vinyl monomer unit comprises 50 to 98 wt-% of the entire polymer, meaning that the remainder of the polymer unit comprises the radical polymerizable unit containing hydrolysable silyl units. Paragraph 40.

Although YANAGASE is silent as to whether the polymer unit comprises the exact ratio as presently claimed by Applicant, YANAGASE does teach that wt-% of the co-polymerizable monomer relative to the radical polymerizable unit containing hydrolysable silyl units and the grafting unit influences strength, durability, water resistance and blocking resistance of the coating. Paragraph 40. Specifically, when the wt-% of the co-polymerizable monomer is too little, the coating exhibits strength and durability and when the wt-% is too much, the coating exhibits poor blocking and water resistance. Paragraph 40.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the ratio of radical polymerizable monomer containing hydrolysable silyl group to a co-polymerizable monomer can be varied to achieve a coating composition with the desired durability, strength, water resistance and blocking resistance, as taught by YANAGASE. Specifically, YANAGASE teaches that the amount of co-polymerizable monomer in the coating composition is a result-effective variable which influences the water resistance, blocking resistance, strength and durability of a coating. Paragraph 40. As per the MPEP, where the general conditions

Art Unit: 1793

of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. MPEP, 2144.05 (II).

With respect to **claim 3**, YANAGASE teaches an aqueous coating material comprising a polymer and colloidal silica. Paragraphs 10 and 11. Specifically, YANAGASE teaches that the colloidal silica is added to the emulsion of a graft block copolymer at a ratio of 1 to 300 weight parts of silica per 100 weight parts of polymer, which covers the claimed range. Paragraph 11. Specifically, as per MPEP 2144.05, when claimed ranges lie inside ranges disclosed by the prior art, a prima facie case of obviousness exists. In a working example, YANAGASE teaches that the colloidal silica has a particle size of 10 to 20 nanometers. Paragraph 70.

Finally, with respect to the polymer composition, YANAGASE teaches that the polymer can comprise a monomer, which is can be polymerized via radical polymerization, having dimethylsiloxane, a hydrolysable silyl group, and a vinyl monomer unit. Paragraph 11. Specifically, YANAGASE teaches that the content of the vinyl monomer unit comprises 50 to 98 wt-% of the entire polymer, meaning that the remainder of the polymer unit comprises the radical polymerizable unit containing hydrolysable silyl units. Paragraph 40.

Although YANAGASE is silent as to whether the polymer unit comprises the exact ratio as presently claimed by Applicant, YANAGASE does teach that wt-% of the co-polymerizable monomer relative to the radical polymerizable unit containing hydrolysable silyl units and the grafting unit influences strength, durability, water resistance and blocking resistance of the coating. Paragraph 40. Specifically, when the

Art Unit: 1793

wt-% of the co-polymerizable monomer is too little, the coating exhibits strength and durability and when the wt-% is too much, the coating exhibits poor blocking and water resistance. Paragraph 40.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the ratio of radical polymerizable monomer containing hydrolysable silyl group to a co-polymerizable monomer can be varied to achieve a coating composition with the desired durability, strength, water resistance and blocking resistance, as taught by YANAGASE. Specifically, YANAGASE teaches that the amount of co-polymerizable monomer in the coating composition is a result-effective variable which influences the water resistance, blocking resistance, strength and durability of a coating. Paragraph 40. As per the MPEP, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. MPEP, 2144.05 (II).

With respect to **claim 5**, YANAGASE teaches that the coating composition is used in a process wherein the coating is provided on a substrate to produce a coated substrate. Paragraphs 62-65. Although YANAGASE is silent as to how much area the colloidal silica occupies on the surface coating, a person having ordinary skill in the art at the time of invention would have appreciated that the properties of a coating are dependent on the coating's composition and that identical coating compositions have identical coating properties. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the coating composition taught by

Art Unit: 1793

YANAGESE meets the colloidal silica coating requirements of the instantly claimed invention because the coatings have the same coating composition.

With respect to **claim 6**, the coating composition taught by YANAGESE is used to produce a coating on a substrate, forming a coated article. Paragraphs 64 and 65.

(4)

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over et al. (JP 09165554 A), as applied to claims 1-3, 5 and 6 above, and further in view of GREIGGER (U.S. Patent No. 4,435,219) and the Admitted Prior Art.

With respect to **claim 4**, YANAGASE teaches that the coating composition contains hydrolysable silyl groups which produce an alcohol upon hydrolysatation but is silent as to whether the produced alcohol (organic solvent) is added in the claimed ratio and whether the produced alcohol has less than a 0.8 of distribution coefficient of octanol/water.

However, GREIGGER, which deals with colloidal silica coating compositions, teaches that coatings that contain alcohols such as methyl or isopropanol have improved stability, temperature resistance and water resistance and are highly adherent. Col. 2, Lines 3-6, Col. 4, Lines 35-42. Additionally, GREIGGER teaches that the silica and alcohol are added to the coating composition at an almost equal ratio relative to one another. Col. 9, Example 1. Specifically, GREIGGER teaches that isopropanol is added to a coating composition at a ratio of 7:6 relative to colloidal silica. Col. 9, Example 1. Accordingly, when 12 parts by mass colloidal silica is added to the

Art Unit: 1793

coating composition, as taught by YANAGASE, 14 parts by weight alcohol is added to the coating composition, meeting the requirements of the instant claim.

Although GREIGGER is silent as to the octanol/water distribution coefficient of isopropanol, Applicant Admits that the octanol/distribution coefficient of isopropanol is 0.05, which is less 0.8, as required by the instant claim. Specification, Page 34.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention to add an organic solvent with an octanol/water distribution coefficient of less than 0.8 to the coating composition taught by YANAGASE because GREIGGER teaches that such an addition allows for a coating composition with improved stability, temperature resistance and water resistance. Col. 2, Lines 3-6, Col. 4, Lines 35-42. Additionally, GREIGGER teaches that the organic solvent as added to the coating composition at a ratio of 7:6 relative to the colloidal silica, which, when calibrated to the colloidal silica ranges taught by YANAGASE, meets the requirements of the instant claim. Col. 9, Example 1. Specifically, , when 12 parts by mass colloidal silica is added to the coating composition, which is within the range taught by YANAGASE, 14 parts by weight alcohol is added to the coating composition, which is consistent with the ratio taught by GREIGGER.

With respect to **claim 5**, YANAGASE teaches that the coating composition is used in a process wherein the coating is provided on a substrate to produce a coated substrate. Paragraphs 62-65. Although YANAGASE is silent as to how much area the colloidal silica occupies on the surface coating, a person having ordinary skill in the art at the time of invention would have appreciated that the properties of a coating are

Art Unit: 1793

dependent on the coating's composition and that identical coating compositions have identical coating properties. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of invention that the coating composition taught by YANAGESE meets the colloidal silica coating requirements of the instantly claimed invention because the coatings have the same coating composition.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELI MEKHLIN whose telephone number is (571)270-7597. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Art Unit: 1793

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ELI MEKHLIN/  
Examiner, Art Unit 1793

August 22, 2009

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793